

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

THIS PAGE BLANK (USPTO)

⑫

EUROPEAN PATENT APPLICATION

⑳ Application number: 87300820.5

⑤① Int. Cl.³: **A 47 K 10/16**

㉔ Date of filing: 30.01.87

③① Priority: 04.02.86 JP 14632/86

④③ Date of publication of application:
12.08.87 Bulletin 87/33

⑧④ Designated Contracting States:
DE FR GB IT

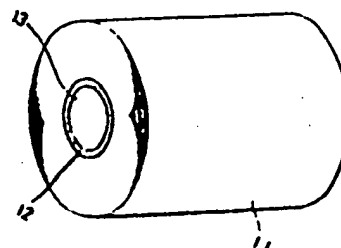
⑦① Applicant: Suzuki, Takafumi
10-9, Tenjinbashi 1-chome Kita-ku
Osaka(JP)

⑦② Inventor: Suzuki, Takafumi
10-9, Tenjinbashi 1-chome Kita-ku
Osaka(JP)

⑦④ Representative: Bankes, Stephen C. D. et al,
Baron & Warren 18 South End Kensington
London W8 5BU(GB)

⑤④ Core for toilet paper roll.

⑤⑦ A core (12) for a toilet paper roll (11) having a deodorant function in which an internal surface (13) of the core (12) with paper (11) wound therearound exhibits a deodorant effect. A material forming the internal circumferential surface (13) of the scroll (12) is coated or impregnated with a deodorant (13) to give a deodorant function to the inside (13) of the core (12), whereby the deodorant (13) is brought into contact with the air to eliminate unpleasant odours in a toilet.



CORE FOR TOILET PAPER ROLL

1 The present invention relates to a core for
toilet paper formed into a roll, in particular to a
core of which the internal circumferential surface has
a deodorant function.

5 In general, since unpleasant odours tend to be
generated in a toilet, it is necessary to take measures
to deodorize the atmosphere.

To this end, there has been proposed a toilet
paper role, in which paper is wound around an external
10 circumferential surface of a tubular core, usually made
by winding strips of stout paper or cardboard, and the
inside of the core is filled with activated carbon to
impact a deodorant function.

Such a toilet paper roll has an advantage in that
15 it is not necessary to place a separate deodorant
device in a toilet. On the other hand, it has a
disadvantage in that since activated carbon is used,
malodorous substances adsorbed by activated carbon may
be released again from activated carbon as the toilet
20 paper is rotated, thus reducing the deodorant effect.

Furthermore the use of activated carbon leads to
increased expense and the deodorant effect is not
proportional to the frequency with which the toilet is
used.

25 The present invention consists in a core for a
toilet paper roll in which a deodorant substance is
given to an internal circumferential surface of the
core, with paper wound around an external surface
thereof.

30 The core of the present invention does not
release adsorbed substances into an air, and can thus

1 be made superior in deodorant effect to the activated
carbon core. It can also be made economically, and has
an effect which is proportional to the frequency with
which a toilet is used.

5 The accompanying drawing is a perspective view
showing a toilet paper using a scroll according to the
present invention therein.

Referring now to the drawing, a roll of toilet
paper 11 is wound around an external circumferential
10 surface of a tubular scroll 12 as a core, said scroll
12 having a deodorant function on its internal
cylindrical surface thereof.

Said scroll 12 is formed from a plurality of
pieces of paper by spirally winding them in axially
15 staggered layers and the deodorant function is imparted
by coating or impregnating a material forming the
internal circumferential portion of the scroll 12 with
a deodorant 13.

Since said scroll 12 is not brought into contact
20 with an air excepting the internal circumferential
surface thereof when used in the toilet paper 11, it is
not necessary to give a deodorant function to portions
other than the internal circumferential surface of the
scroll 12.

25 One material which may be used for the deodorant
13 is a compound obtained from ferrous sulfate and
L-ascorbic acid. This deodorant 13 reacts particularly
with strong smelling substances such as ammonia and
hydrogen sulfide, existing in the toilet in great
30 quantities. Ammonia of a volume about 100 times that
adsorbed by activated carbon can be removed by the
above compounds after one hour from the start of
operation. Thus, this deodorant 13 is remarkably
effective.

1 Accordingly, a deodorant paper having the area of
the inner surface of scroll 12, for example 136 cm^2 ,
can exhibit an effect sufficient for the deodorization
of a toilet having a volume of about 4 m^3 .

5 The deodorant 13 can be applied to the internal
circumferential surface of the scroll 12 in various
ways, including a method in which the internal
circumferential surface of the scroll 12 is formed of
paper whose internal circumferential exposed surface is
10 coated with the deodorant 13. In another method, said
paper is impregnated with the deodorant 13, and in
another the internal circumferential surface of the
fabricated scroll 12 is itself directly coated with the
deodorant 13, in a further method the internal
15 circumferential surface of the scroll 12 is formed of a
material other than a paper, such as a film, coated or
impregnated with the deodorant 13.

 If the material forming the internal
circumferential surface of the scroll 12 is coated or
20 impregnated with the deodorant 13, as above described,
the scroll 12 having the deodorant function can be
manufactured without radically changing the
manufacturing process, with consequent cost advantages.
In addition, the adoption of this means of coating the
25 deodorant 13 avoids the need for additional adhesives,
which might come into contact with the deodorant and
adversely affect its deodorant properties.

 With the roll 11 formed by winding the paper
around the external circumferential surface of the
30 scroll 12 having said construction, the scroll 12 is
open at both ends thereof when used and the roll 11 is
rotatably mounted on a holder by means of an idle shaft
passing through the scroll 12, whereby air circulating
through the scroll 12 is brought into contact with the

1 deodorant 13 to remove unpleasant odours.

Besides, the scroll 12 is rotated when the paper is used, whereby substances on the internal circumferential surface of the scroll 12 which have
5 been altered by a chemical reaction are scraped by means of the shaft of the holder to expose the non-reacted surface of the deodorant 13. Thus, the strong deodorant effect can be always maintained.

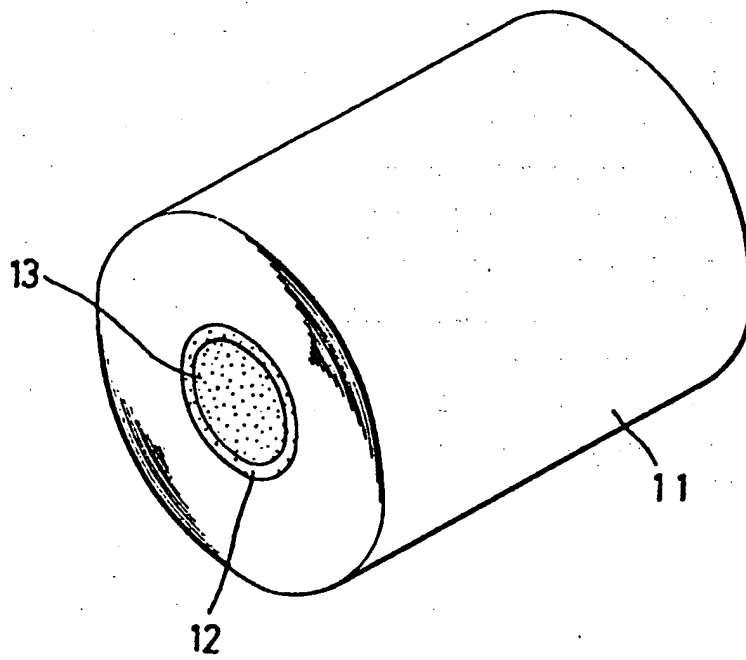
Furthermore, since the rotational motion of the
10 scroll 12 is not a true circle, an appropriate flow of air passes through the scroll 12, whereby odour-laden air is introduced into an inside of the scroll 12 to promote the deodorant effect.

Accordingly, not only is a strong deodorant
15 effect can be maintained until the paper is used up but also the toilet paper roll can be manufactured economically using conventional facilities.

It goes without saying that an anti-odorant can be used in place of said deodorant.

CLAIMS

- 1 1. A core for a toilet paper roll in which a deodorant substance (13) is given to an internal circumferential surface of the core (12) with paper (11) wound around an external surface thereof.
- 5 2. A core for a toilet paper roll as set forth in claim 1, in which the deodorant effect is imparted by applying a paper coated with the deodorant (13) the internal circumferential surface of the scroll (12).
- 10 3. A core for a toilet paper roll as set forth in claim 1, in which the deodorant effect is imparted by applying a paper impregnated with the deodorant in the formation of the internal circumferential surface of the scroll (12).
- 15 4. A core for a toilet paper roll as set forth in claim 1, in which a material other than paper is coated or impregnated with the deodorant (13).
- 20 5. A core for a toilet paper roll as set forth in claim 1, in which the deodorant effect is imparted by directly coating the internal circumferential surface of the scroll (12) with the deodorant (13).
6. A core for a toilet paper roll as set forth in any preceding claim, in which the deodorant is a compound obtained from ferrous sulfate and ascorbic acid.



0232141



EUROPEAN SEARCH REPORT

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 87300820.5
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	DE - A1 - 2 755 332 (FELDMÜHLE) * Fig. 1; page 8, 1st, 2nd paragraph *	1,4	A 47 K 10/16
	--		
X	CH - A - 182 676 (METAUX-BLANCS) * Fig. 2; page 2, lines 24-27 *	1,5	
	--		
X	AU - B - 21 010/83 (COSCO) * Fig. 7; page 8, lines 19-23 *	1,5	

			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			A 47 K 10/00
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 07-04-1987	Examiner KNAUER
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			